

Appl. No. 10/814,408
Atty. Docket: 2002B139/2
Amendment dated December 21, 2006
Reply to Office Action dated October 3, 2006

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-23. (Canceled)

24. (Currently Amended) An oxygenates to olefins fluidized bed reactor apparatus for converting an oxygenate feed to olefins in a riser reactor which comprises:

(a) an oxygenate feed line communicating with a riser reactor feed inlet to said riser reactor, said riser reactor further comprising a riser reactor outlet for riser reactor effluent containing solid catalyst particles and olefins-containing vapor;

(b) a preheater through which said oxygenate feed line passes for at least partially vaporizing said feed by heat exchange with a fluid heating medium flowing through said preheater;

(c) a disengaging vessel for receiving said riser reactor effluent and separating at least some of said solid catalyst particles from said effluent, said disengaging vessel further comprising a disengaging vessel outlet at an upper portion of said vessel for removing said olefins-containing vapor;

(d) a catalyst circulation line running downward from a lower portion of said disengaging vessel to a lower portion of said riser reactor;

(e) a regenerator comprising a lower inlet for introducing a regeneration medium, an upper outlet for regenerator flue gas, said regenerator further comprising a first catalyst transport line running downwardly from a lower portion of said disengaging vessel to a regenerator catalyst inlet on the regenerator, and a second catalyst transport line extending downwardly from a regenerated catalyst outlet on the regenerator and intersecting with a lift gas riser, said lift gas riser having an upper outlet at said disengaging vessel and a lower lift gas inlet; and

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(f) a regenerator catalyst circulation control valve means for controlling the passage of catalyst from said regenerated catalyst outlet to said lift gas riser, ~~said regenerator catalyst circulation control valve~~ and being manipulated as a function of riser reactor temperature; and

(g) a catalyst circulation control valve means for controlling circulation of catalyst from said disengaging vessel to said riser reactor, ~~said catalyst circulation valve~~ and being manipulated as a function of the difference in pressure between an upper portion of said riser reactor and a lower portion of said riser reactor.

25-29. (Cancelled)

30. (Previously Presented) The apparatus of claim 24, wherein said riser reactor comprises a temperature sensor at a point ranging from 30% to 40% of said riser reactor length, measured from said feed inlet of the riser reactor.

31. (Previously Presented) The apparatus of claim 24, wherein said riser reactor comprises a temperature sensor at a single location between about 20% to about 80% of the axial length of the reactor.

32. (Previously Presented) The apparatus of claim 24, wherein said riser reactor comprises a temperature sensor along a portion of the reactor.

33. (Currently Amended) The apparatus of claim 24, wherein said catalyst circulation control valve ~~is controlled by~~ means for controlling circulation of catalyst includes a pressure controller that integrates readings taken from an upper riser reactor pressure sensor and a lower riser reactor pressure sensor and controls catalyst amount in the riser reactor.